

ABSTRACT OF THE DISCLOSURE

An image processing apparatus capable of detecting position and posture of individual workpieces randomly arranged in a stack and having identical shapes. Reference models are created from two-dimensional images of a reference workpiece captured in a plurality of directions by a camera and stored. Also, the relative positions/postures of the workpiece with respect to the camera at the respective image capturing are stored. An image of a stack of workpieces is captured by the camera to obtain a two-dimensional image and the position/posture of the camera at the image capturing is stored. An image of a workpiece matched with one reference model is selected by matching processing of the reference model with the captured image. A three-dimensional position/posture of the workpiece with respect to the camera is obtained from the image of the selected workpiece, the selected reference model and position/posture information associated with the reference model. A picking operation for picking out a respective workpiece from a randomly arranged stack can be performed by a robot based on the position/posture of the workpiece.